

Log. of Semi-axis Major  $0^{\circ}56533$   
Mean Daily Motion .....  $503''52$

Time of Revolution .....  $7^{\circ}0468$  sidereal years.

Longitude of ascending Node .....  $211^{\circ}59'12''$   
Inclination .....  $11^{\circ}28'48''$

Motion direct.

### Ephemeris for 8<sup>h</sup> Mean Greenwich Time.

Day.	Right Ascension.	Declination.	Distance from	
			Sun.	Earth.
1844. Feb. 8	$5^{\text{h}}23^{\text{m}}36^{\text{s}}$	$+6^{\circ}18'$	2.008	1.325
12	$5^{\text{h}}27^{\text{m}}32^{\text{s}}$	$6^{\circ}45$	2.029	1.380
16	$5^{\text{h}}31^{\text{m}}36^{\text{s}}$	$7^{\circ}11$	2.051	1.437
20	$5^{\text{h}}35^{\text{m}}52^{\text{s}}$	$7^{\circ}37$	2.073	1.495
24	$5^{\text{h}}40^{\text{m}}20^{\text{s}}$	$8^{\circ}2$	2.096	1.555
28	$5^{\text{h}}45^{\text{m}}4^{\text{s}}$	$+8^{\circ}27$	2.118	1.616

T. HENDERSON.

Edinburgh, Feb. 14, 1844.

### III. Elements of the Comet of Faye. By J. R. Hind, Esq. Communicated by the Rev. R. Main.

The following elliptical elements were computed from the Paris observation on Nov. 24, an observation at Hamburg on December 17, and one at Kensington on January 15. The corrections for parallax and aberration were applied according to the method described by Gauss in the *Theoria Motus Corporum Cælestium*. The longitudes were reduced to the mean equinox on the 1st January, 1844. The data employed in the calculations stand as follows:—

Greenwich Mean Time.	Comet's Geocentric Longitude.	Comet's Geocentric Latitude.	Earth's Heliocentric Longitude (corrected).	Log. Rad. Vect. of Earth (corrected).
1843. Nov. 24 <sup>th</sup> 05 <sup>m</sup> 11 <sup>s</sup> 00	$80^{\circ}29'39''8$	$-16^{\circ}38'54''8$	$62^{\circ}19'15''1$	9.9942268
Dec. 17 <sup>th</sup> 30 <sup>m</sup> 89 <sup>s</sup> 757	$77^{\circ}34'51''4$	$19^{\circ}36'39''5$	$85^{\circ}16'14''0$	9.9929530
1844. Jan. 15 <sup>th</sup> 55 <sup>m</sup> 21 <sup>s</sup> 04	$76^{\circ}36'59''6$	$-19^{\circ}1'16''5$	$115^{\circ}4'10''1$	9.9929275

Hence the following elliptical elements:—

Epoch 1844, January 1<sup>d</sup> Greenwich Mean Time.

Mean Anomaly .....  $9^{\circ}56'36''7$   
Longitude of Perihelion on the Orbit .....  $53^{\circ}19'52''4$  From the  
Longitude of Ascending Node .....  $208^{\circ}24'18''3$  Mean Equinox.  
Inclination .....  $11^{\circ}7'8''7$   
Angle of Eccentricity .....  $31^{\circ}54'52''15$

Log. of Semi-axis Major .....	$0^{\circ}5582124$
Mean Daily Sidereal Motion.....	$516''\cdot04548$
Period of Sidereal Revolution .....	$2511^d\cdot403$ or about 6 years 11 months.
Log. of Semi-axis Minor .....	$0^{\circ}4870372$
Log. of Semi-parameter .....	$0^{\circ}4158620$
Log. of Perihelion Distance .....	$0^{\circ}2315531$
Log. of Eccentricity in Seconds.....	$5^{\circ}0375958$
Log. $\sqrt{a(1+e)}$ .....	$0^{\circ}3712607$
Log. $\sqrt{a(1-e)}$ .....	$0^{\circ}1157766$

IV. Letter from Professor Encke (translated), dated Berlin, Feb. 19, 1844. Communicated by G. B. Airy, Esq. Astronomer-Royal.

" The comparison of the Berlin observations of the *Comet of Pons*, made in the year 1842, with the elements which were derived from the observations up to the year 1838 and from the mass of *Mercury* thence deduced, and with the total disturbances up to 1842, has shewn, that the remaining errors are quite insignificant; and I find, in fact, for the less accurate observations at the commencement, when the comet was very faint: —

	$\Delta \alpha$	$\Delta \delta$
Feb. 9	— $1^{\circ}7$	$+ 18''\cdot2$
11	$+ 17\cdot9$	— $1\cdot3$
12	$+ 16\cdot9$	$+ 4\cdot7$
March 3	— $1\cdot6$	— $4\cdot6$

And for the later and more accurate observations: —

March 11	$+ 4^{\circ}8$	$+ 3^{\circ}6$
20	$+ 3\cdot7$	$- 5\cdot3$
23	$+ 9\cdot3$	$- 8\cdot3$
24	$+ 0\cdot5$	$+ 2\cdot2$
April 6	$+ 7\cdot5$	$- 4\cdot2$
7	$+ 1\cdot0$	$+ 3\cdot4$

both sets of errors in right ascension and in declination being expressed in seconds of space. Now that I am preparing the *Ephemeris* for 1845, it would be highly important for me to compare the whole of the observations of 1842, especially those of the Cape of Good Hope. Up to the present time, I have received no communication concerning them. Should the results of these observations be known to you, I should be much obliged if you would do me the favour to communicate them.

" The present remarkable comet we have seen up to the 13th of February, but we shall probably be able to follow it still farther.

" The last observations were,

	$^h \ ^m \ ^s$	R.A.	Declination.
		$80^{\circ}39'57\cdot8''$	$+ 6^{\circ}10'51\cdot9''$
Feb. 7	$7 \ 15 \ 34$		
10	$10 \ 59 \ 8$	$81^{\circ}22'21\cdot5''$	$6^{\circ}31'54\cdot9''$
13	$7 \ 40 \ 6$	$82^{\circ}3'54\cdot6''$	$+ 6^{\circ}51'42\cdot8''$